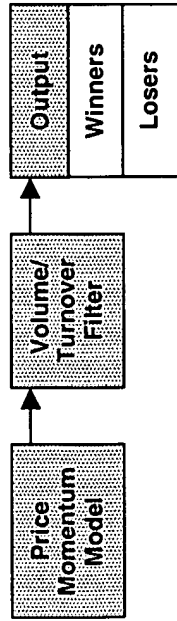
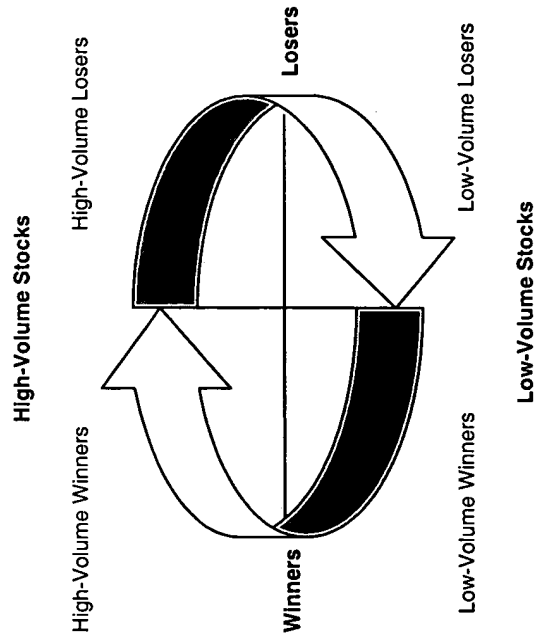


1. The first step in the process is to identify the stocks that are in the market. This is done by using a price momentum model to identify stocks that are moving up or down.



**Figure 1**



**Figure 2**

Figure 3: Quarterly Rebalancing Returns for Price Momentum, EM Model, and SPX

Month-End Formation	Price Momentum Winners	EM Model Winners	Price Momentum (Winners - Losers)	EM Model (Winners - Losers)	SPX
Jan, April, July, Oct	25.0%	25.5%	11.5%	14.9%	14.8%
Feb, May, Aug, Nov	26.1%	30.2%	13.3%	17.1%	15.7%
Mar, Jun, Sep, Dec	26.5%	28.7%	13.7%	15.6%	16.8%

Figure 3

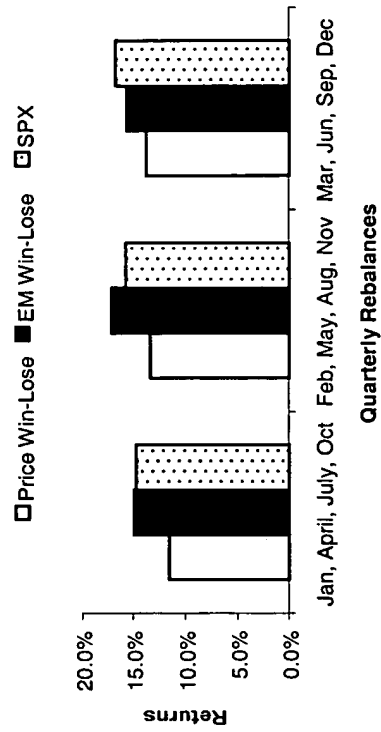


Figure 4

Month- End Formation	Price Momentum Winners	EM Model Winners	Price Momentum (Winners - Losers)	EM Model (Winners - Losers)	SPX
Jan, July	26.8%	27.8%	13.9%	14.2%	15.3%
Feb, Aug	27.1%	25.4%	14.9%	9.4%	16.3%
Mar, Sep	21.1%	24.0%	5.3%	7.4%	16.2%
April, Oct	21.4%	23.5%	5.0%	6.7%	15.9%
May, Nov	26.1%	30.2%	12.4%	18.7%	15.1%
Jun, Dec	27.0%	28.7%	13.4%	15.9%	15.8%

Figure 5

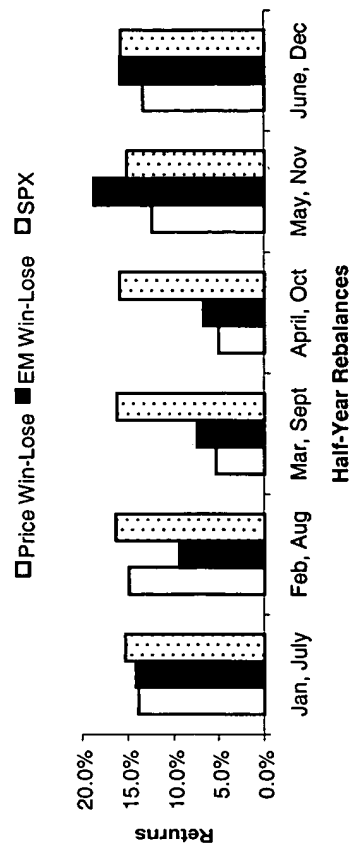


Figure 6



Figure 9: Three-Month Holding Periods, EM Long Winners Short Losers, and Three-Month LIBOR

Three-Month Holding Periods	EM Long Winners Short Losers	Three-Month LIBOR
Jan, April, July, Oct	14.9%	5.43%
Feb, May, Aug, Nov	17.1%	5.45%
Mar, Jun, Sep, Dec	15.6%	5.43%

Figure 9

Six-Month Holding Periods	EM Winners	SPX
Jan, July	0.94	0.64
Feb, Aug	0.90	0.62
Mar, Sep	0.77	0.53
April, Oct	0.96	0.60
May, Nov	1.10	0.61
Jun, Dec	0.96	0.68

Figure 10

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999  
 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999

Six-Month Holding Periods	EM Long Winners Short Losers	Six-Month Month Libor
Jan, July	14.2%	5.50%
Feb, Aug	9.4%	5.52%
Mar, Sep	7.4%	5.28%
April, Oct	6.7%	5.52%
May, Nov	18.7%	5.56%
Jun, Dec	15.9%	5.51%

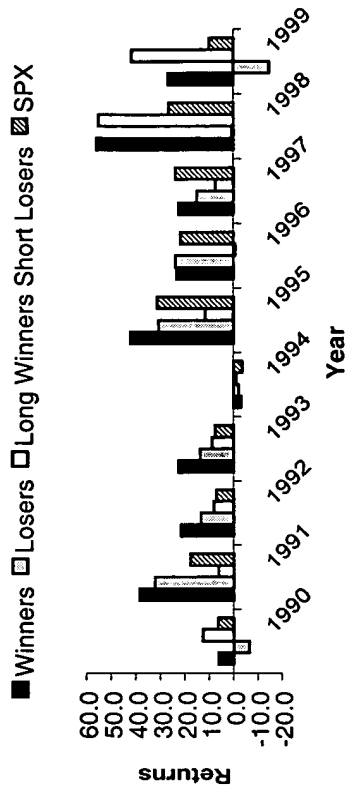


Figure 11

Figure 12

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999  
 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999  
 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999

■ Winners □ Losers ▨ Long Winners Short Losers ▩ SPX

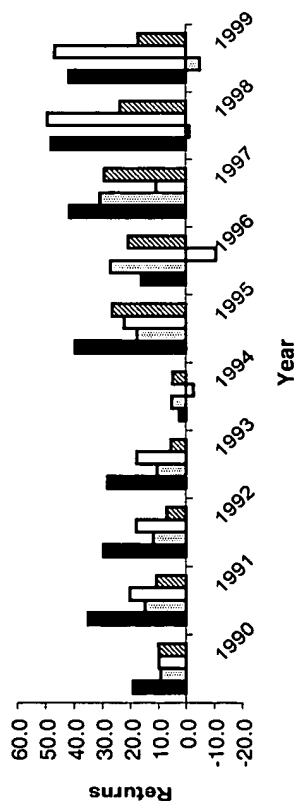


Figure 13

■ Winners □ Losers ▨ Long Winners Short Losers ▩ SPX

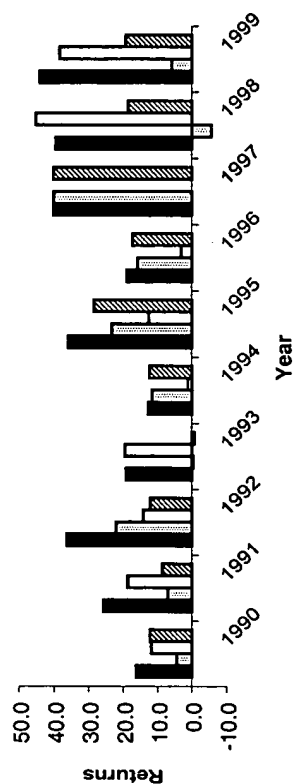


Figure 14

■ Winners □ Losers ▨ Long Winners Short Losers ▩ SPX

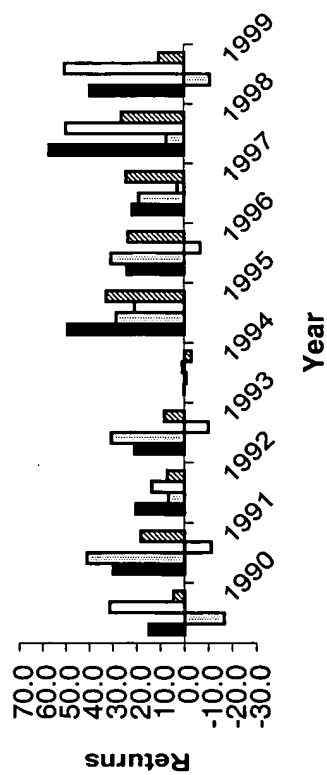


Figure 15

■ Winners □ Losers ▨ Long Winners Short Losers ▩ SPX

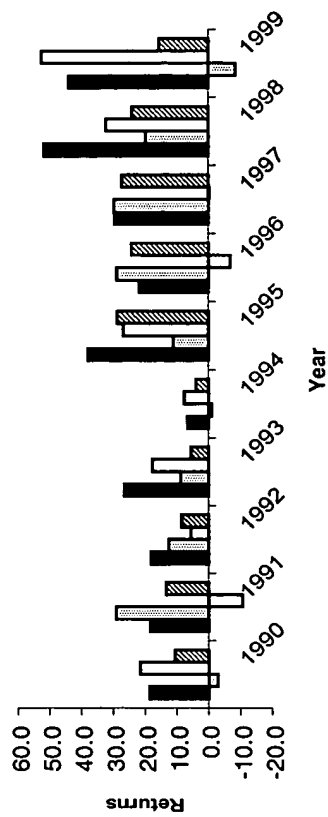


Figure 16



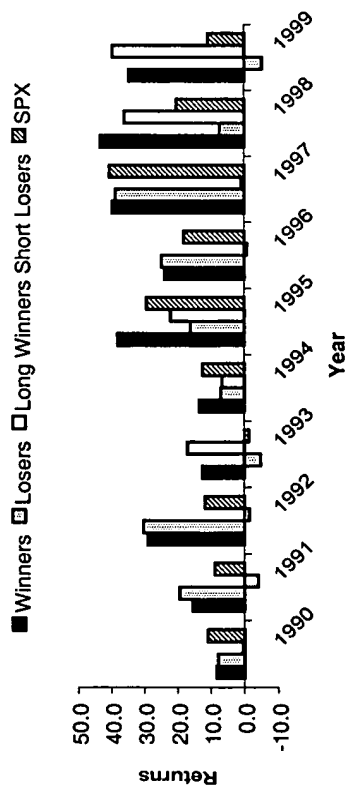


Figure 17

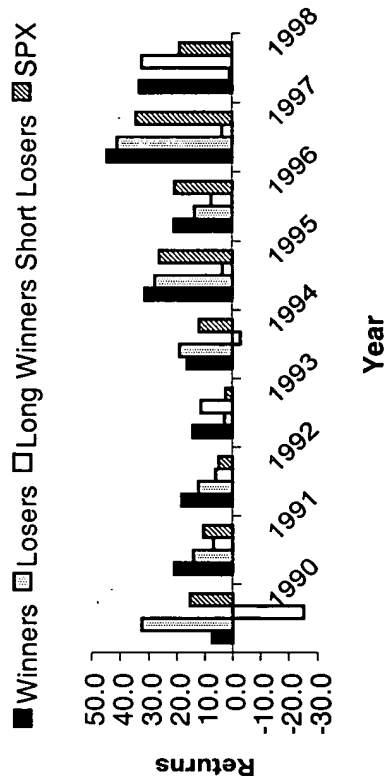


Figure 18

1990 1991 1992 1993 1994 1995 1996 1997 1998  
 1990 1991 1992 1993 1994 1995 1996 1997 1998  
 1990 1991 1992 1993 1994 1995 1996 1997 1998

■ Winners □ Losers ▨ Long Winners Short Losers ▩ SPX

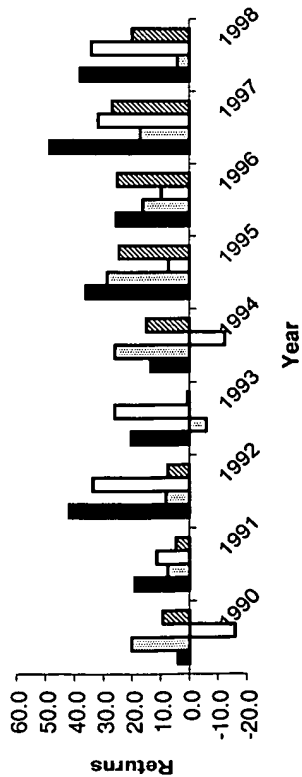


Figure 19

■ Winners □ Losers ▨ Long Winners Short Losers ▩ SPX

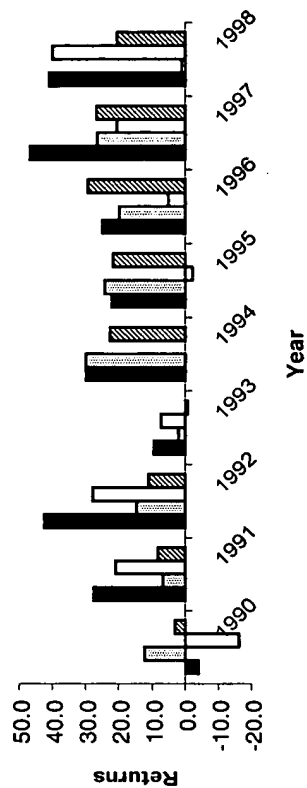


Figure 20

Source: Compustat, 1990-1999. Data are for the 12 months ending in the month of the formation date.

Month-End Formation Date	EM Winners	EM Losers	EM Winners - Losers	SPX
January	4.7%	7.5%	-2.8%	3.5%
February	5.7%	7.7%	-2.0%	4.0%
March	6.1%	6.0%	0.1%	4.7%
April	7.3%	2.0%	5.3%	4.3%
May	5.6%	-4.1%	9.7%	0.3%
June	4.3%	-5.3%	9.6%	-0.2%
July	2.5%	-5.9%	8.4%	0.0%
August	7.3%	-0.3%	7.6%	5.0%
September	8.4%	3.8%	4.6%	7.2%
October	11.0%	7.0%	4.0%	6.9%
November	11.6%	9.7%	1.9%	6.4%
December	10.0%	8.6%	1.4%	5.0%

Figure 21

Month-End Formation Date	EM Winners	EM Losers	EM Winners - Losers	SPX
January	12.8%	10.5%	2.3%	7.9%
February	9.2%	4.8%	4.4%	4.6%
March	8.7%	3.4%	5.3%	4.6%
April	10.2%	-2.0%	12.2%	4.1%
May	14.8%	-4.4%	19.1%	4.7%
June	14.4%	-1.2%	15.6%	6.4%
July	15.0%	3.0%	11.9%	7.4%
August	16.2%	11.2%	5.0%	11.9%
September	15.3%	13.2%	2.1%	11.6%
October	13.3%	18.8%	-5.6%	11.8%
November	15.4%	15.8%	-0.4%	10.4%
December	14.3%	14.0%	0.3%	9.4%

Figure 22

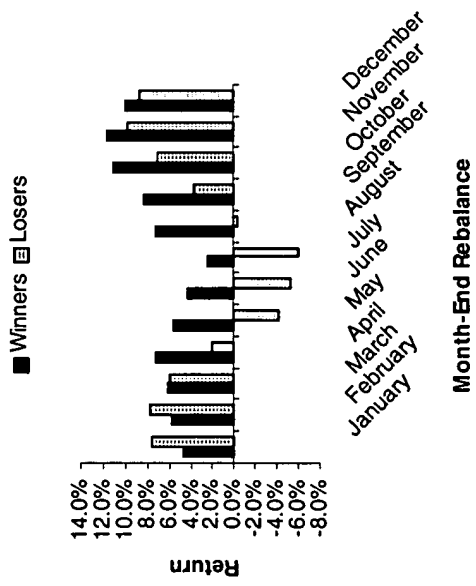


Figure 23

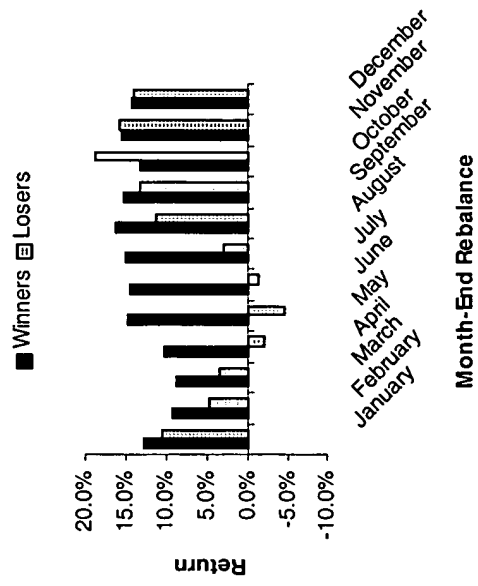


Figure 24

Winners - Losers

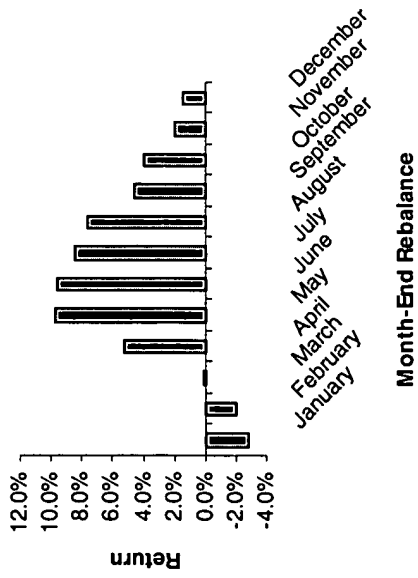


Figure 25

Winners - Losers

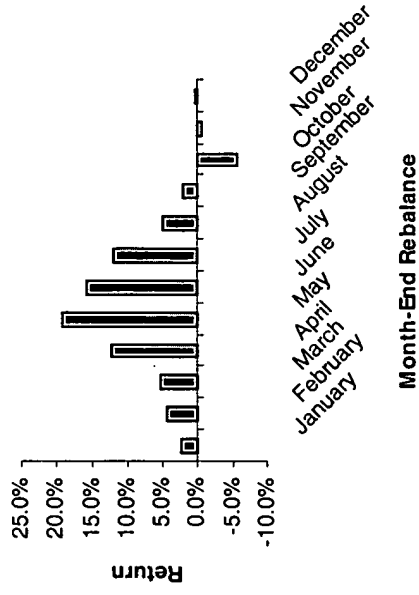


Figure 26

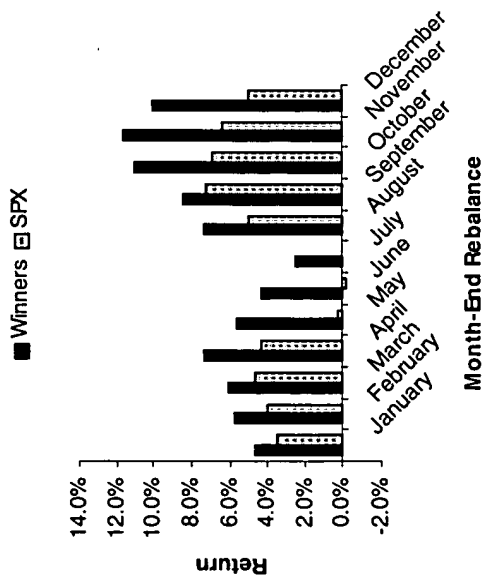


Figure 27

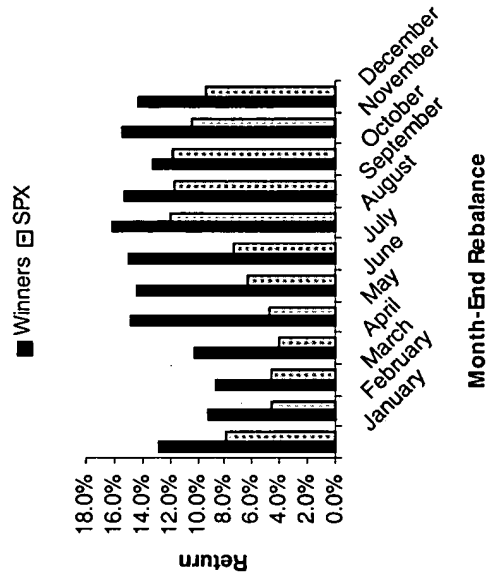


Figure 28

Figure 29: EM Winners and Losers by Month-End Formation Date

Month-End Formation Date	EM Winners	EM Losers	EM Winners - Losers	SPX
January	47.4%	75.3%	-27.9%	35.3%
February	57.1%	77.3%	-20.2%	39.6%
March	60.6%	59.8%	0.8%	47.2%
April	72.8%	19.7%	53.1%	43.2%
May	56.2%	-41.0%	97.2%	3.0%
June	42.7%	-52.9%	95.6%	-1.6%
July	25.2%	-59.1%	84.3%	0.0%
August	72.9%	-2.6%	75.5%	49.8%
September	84.0%	38.3%	45.7%	72.5%
October	109.7%	70.1%	39.6%	69.4%
November	104.0%	87.7%	16.3%	57.8%
December	89.8%	77.2%	12.6%	44.9%

Figure 29

Month-End Formation Date	EM Winners	EM Losers	EM Winners - Losers	SPX
January	128.0%	105.2%	22.8%	79.0%
February	92.3%	48.4%	43.9%	46.3%
March	86.8%	33.6%	53.2%	46.0%
April	102.2%	-20.2%	122.4%	41.2%
May	147.8%	-43.5%	191.3%	47.0%
June	143.8%	-12.0%	155.8%	63.8%
July	149.6%	30.2%	119.4%	73.5%
August	145.9%	101.0%	44.9%	107.2%
September	137.3%	118.8%	18.5%	104.2%
October	119.4%	169.4%	-50.0%	106.2%
November	138.3%	142.1%	-3.8%	93.9%
December	129.1%	126.1%	3.0%	84.6%

Figure 30

Winners - Losers

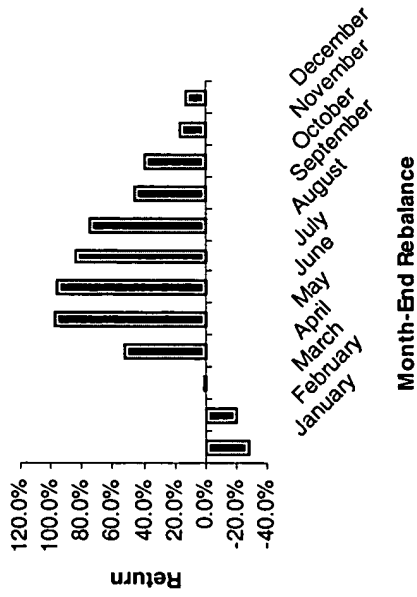


Figure 31

Winners - Losers

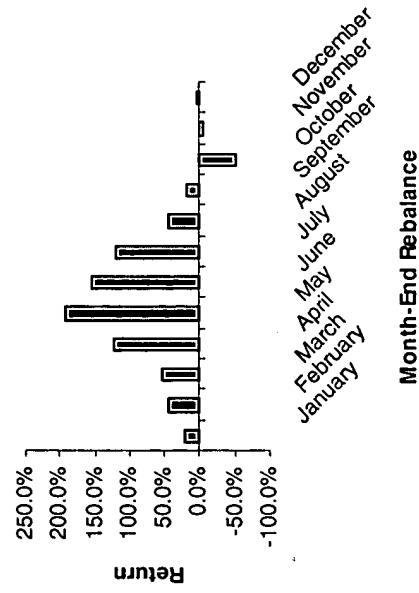


Figure 32



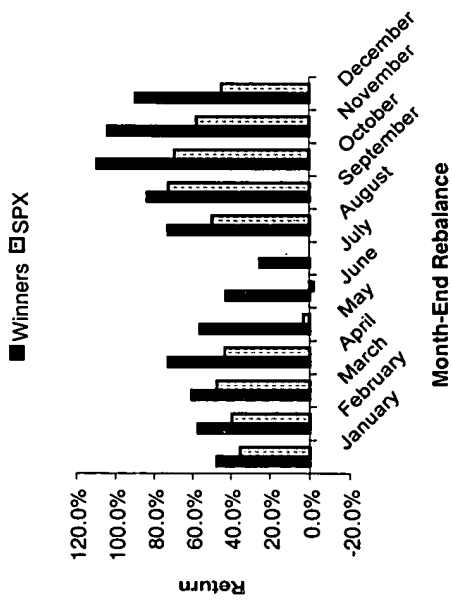


Figure 33

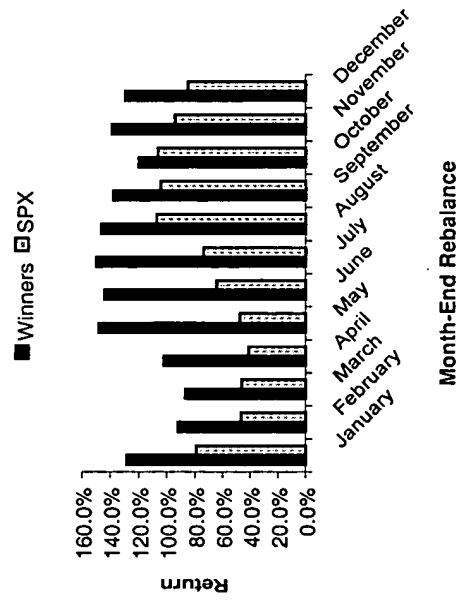


Figure 34

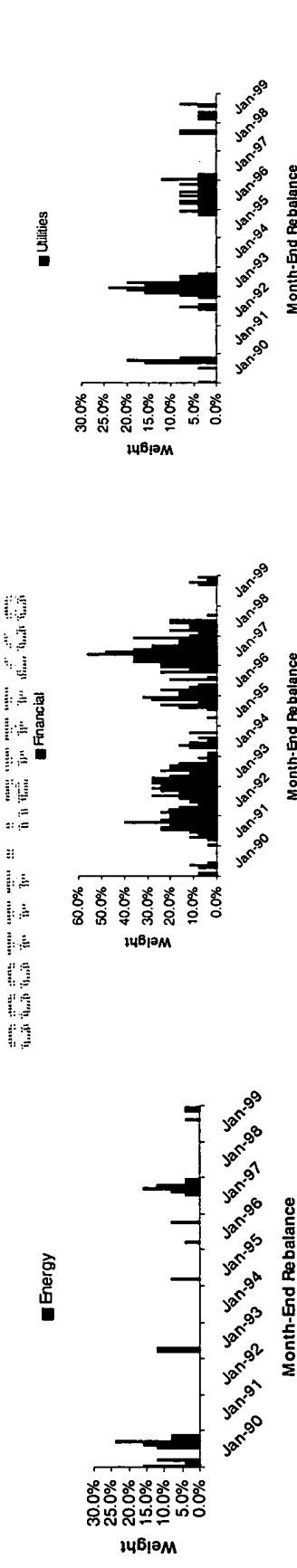


Figure 35A

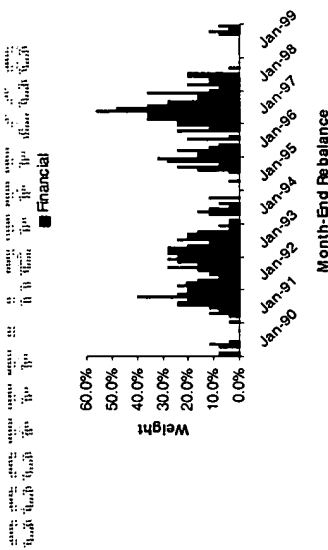


Figure 35B

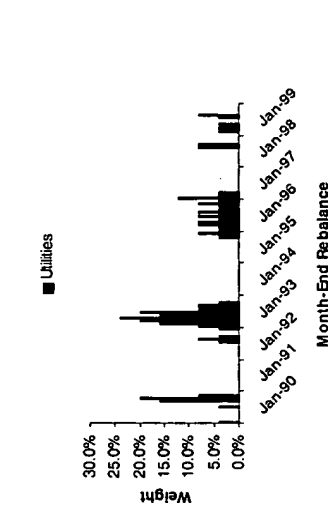


Figure 35C

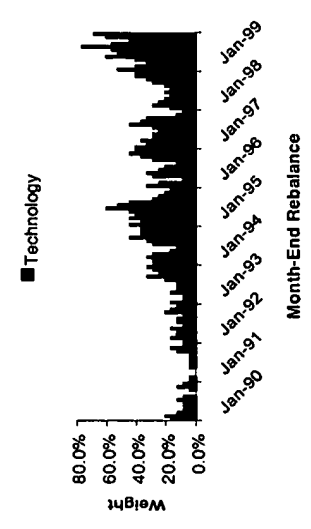


Figure 35D

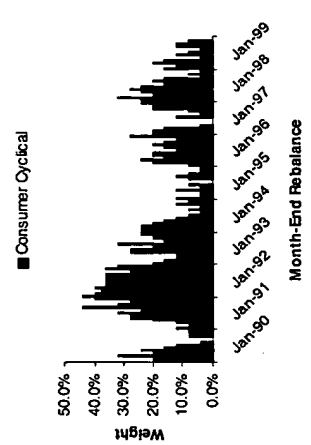


Figure 35E

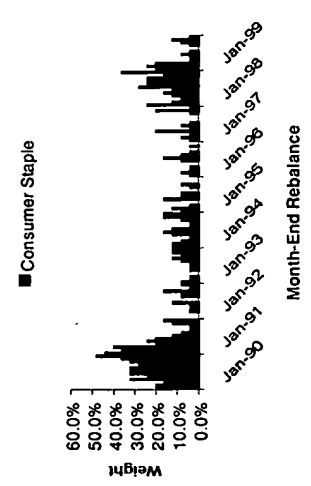


Figure 35F

Figure 36A: Capital Goods Weight (Jan-90 to Jan-99)

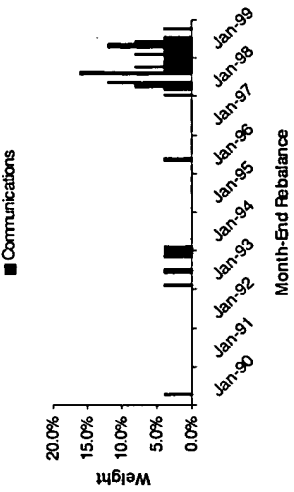
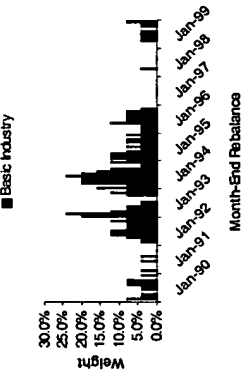
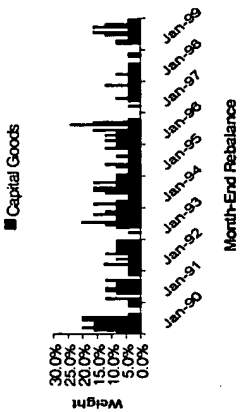
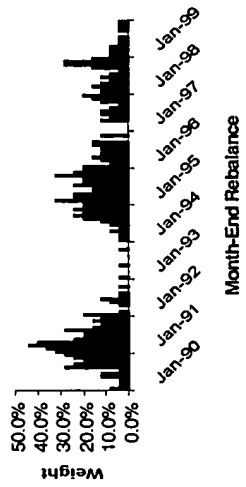


Figure 36A

Figure 36B

Figure 36C

■ Health Care



■ Transportation

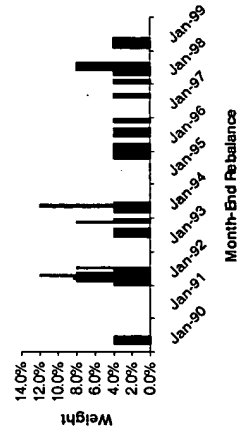


Figure 36D

Figure 36E

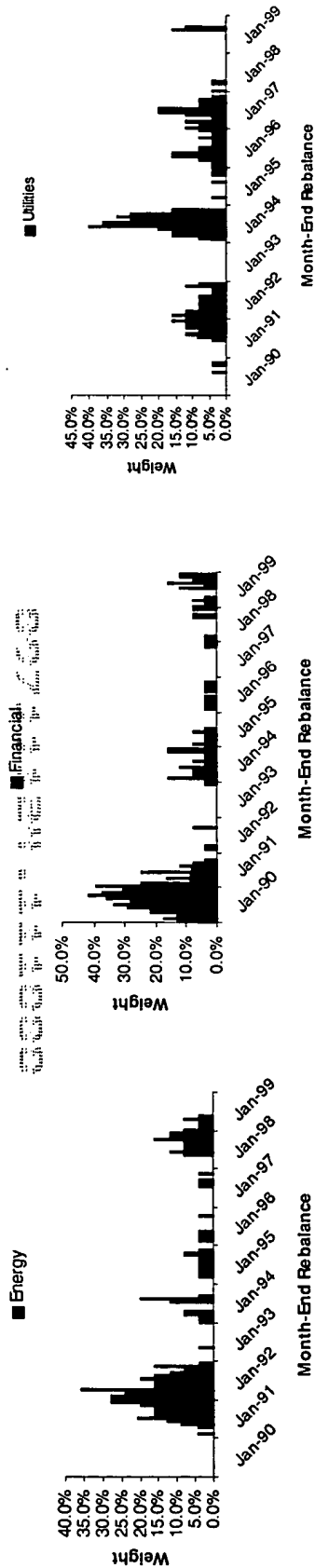


Figure 36F

Figure 36G

Figure 36H

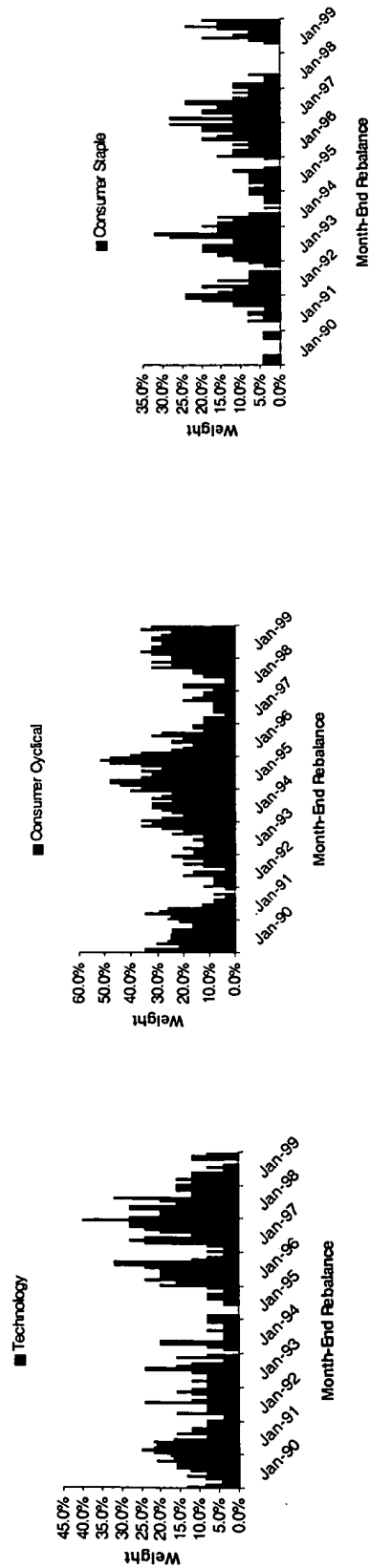


Figure 36I

Figure 36J

Figure 36K

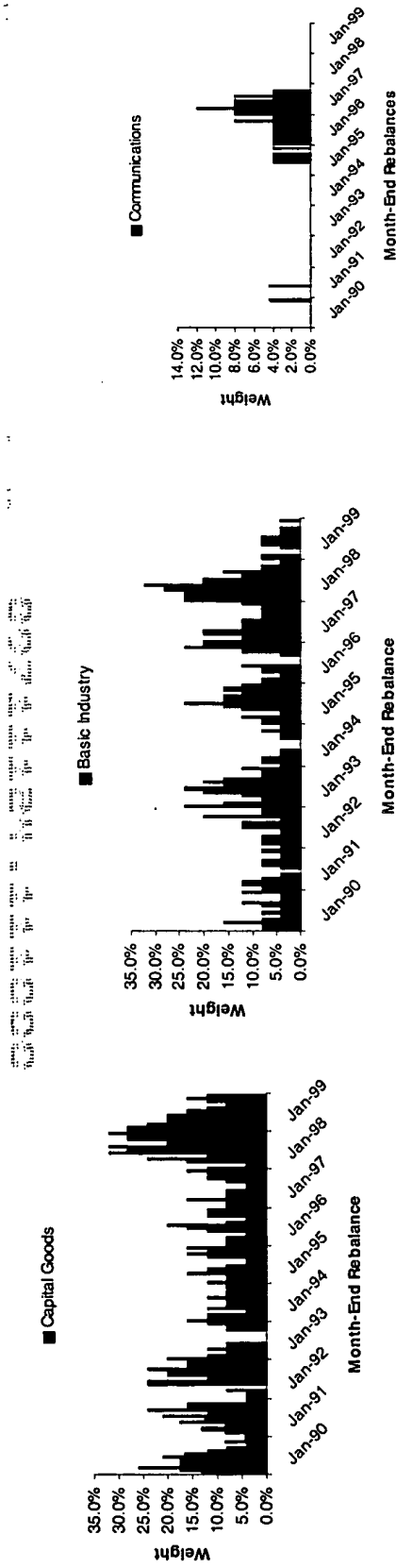


Figure 37A

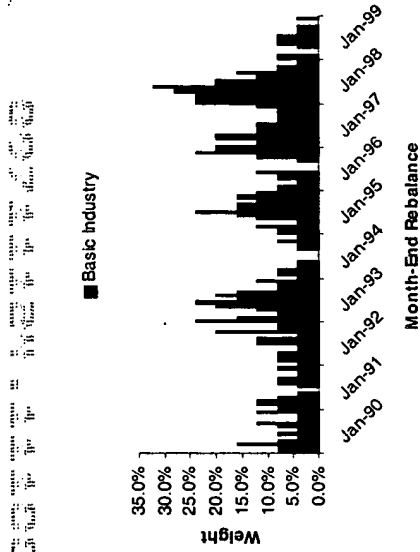


Figure 37B

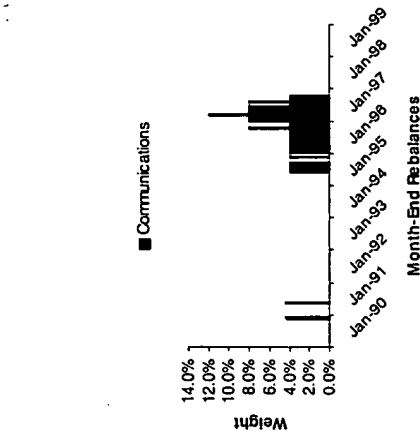


Figure 37C

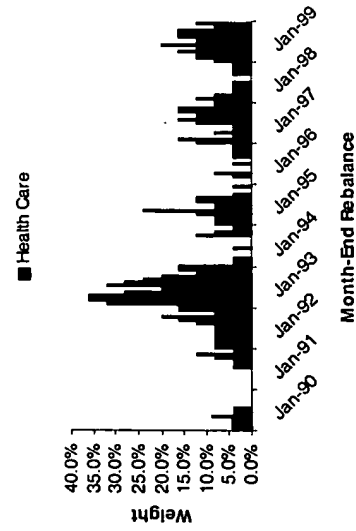


Figure 37D

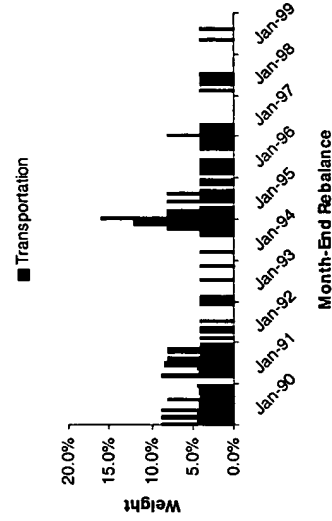


Figure 37E

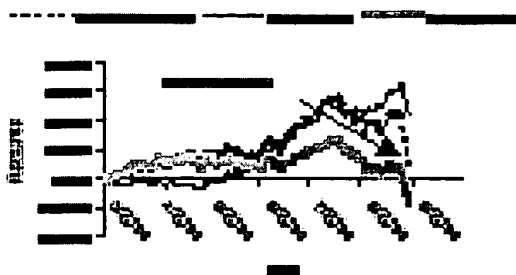


Figure 38A

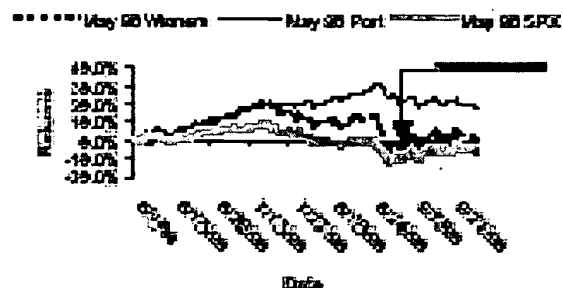


Figure 38D



Figure 38B

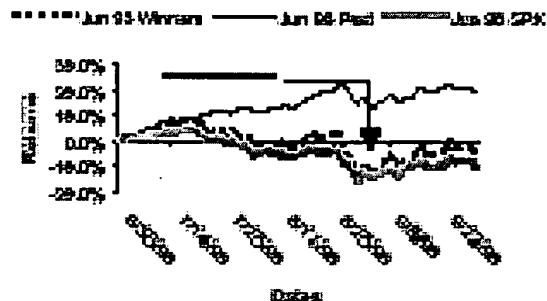


Figure 38E

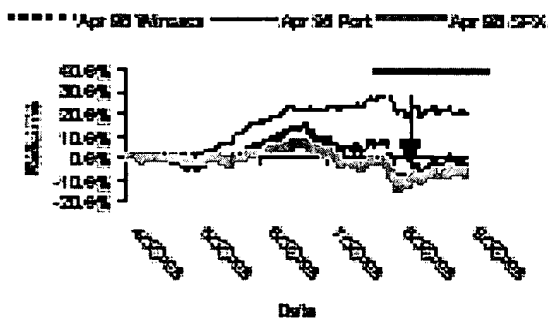


Figure 38C

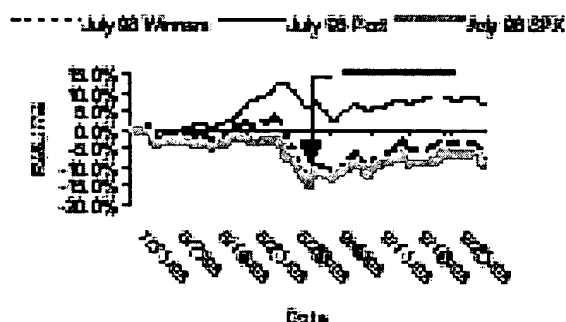


Figure 38F

----- April 97 Winmax ----- April 97 Port ----- April 97 SPX

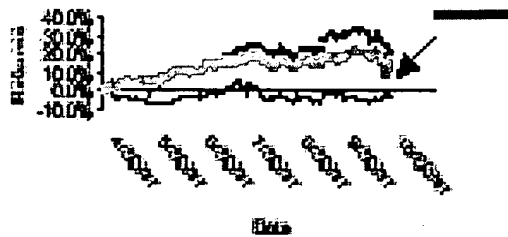


Figure 39A

----- July 97 Winmax ----- July 97 Port ----- July 97 SPX

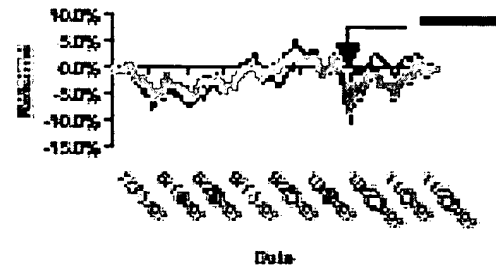


Figure 39D

----- May 97 Winmax ----- May 97 Port ----- May 97 SPX

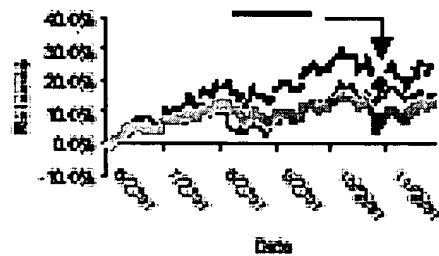


Figure 39B

----- Aug 97 Winmax ----- Aug 97 Port ----- Aug 97 SPX

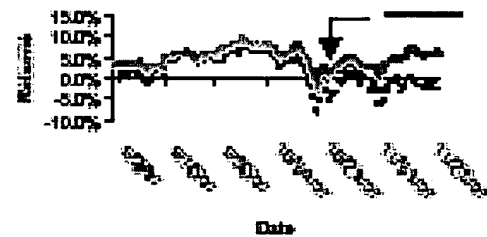


Figure 39E

----- June 97 Winmax ----- June 97 Port ----- June 97 SPX

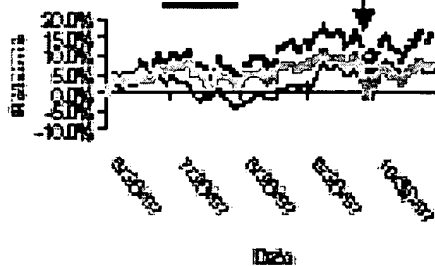


Figure 39C

----- Sep 97 Winmax ----- Sep 97 Port ----- Sep 97 SPX

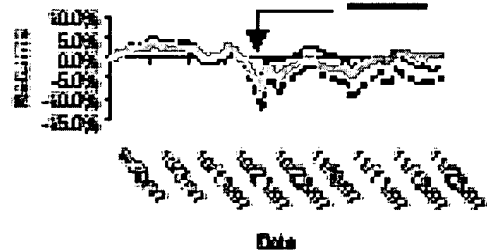


Figure 39F

July 99 Winners July 99 Port July 99 SPX

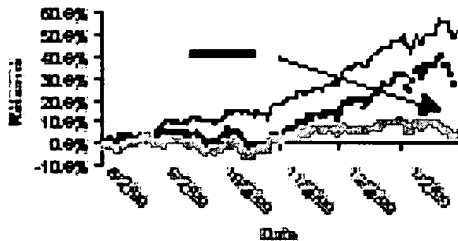


Figure 40A

July 99 Winners July 99 Port July 99 SPX

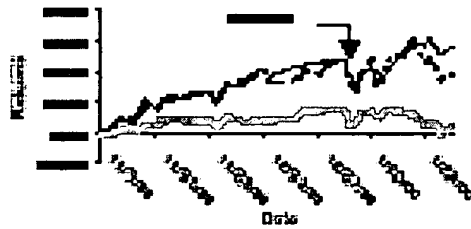


Figure 40D

Aug 99 Winners Aug 99 Port Aug 99 SPX

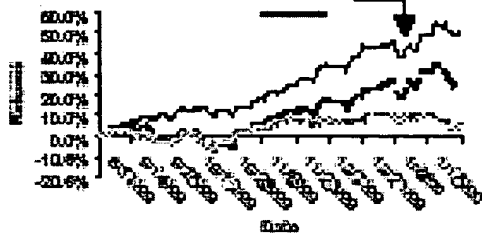


Figure 40B

Nov 99 Winners Nov 99 Port Nov 99 SPX

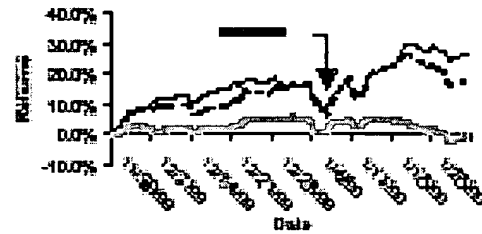


Figure 40E

Sep 99 Winners Sep 99 Port Sep 99 SPX

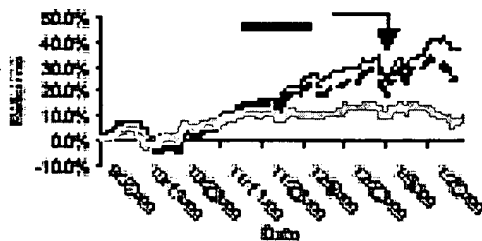


Figure 40C

Dec 99 Winners Dec 99 Port Dec 99 SPX

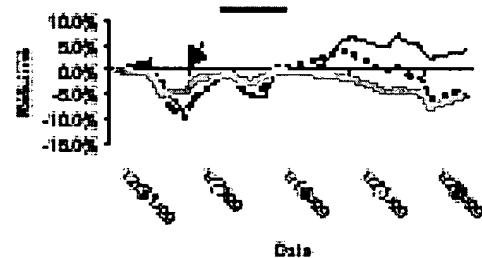


Figure 40F



Source: Compustat, 1980-1999. Data are based on the 1999 Compustat database. The sample is restricted to firms with non-missing data on the variables used in the analysis. The sample is further restricted to firms with non-missing data on the variables used in the analysis.

Month-End Formation Date	EM Winners	EM Losers	EM Winners - Losers	SPX	EM Winners - SPX
January	4.7%	7.5%	-2.8%	3.5%	1.2%
February	5.7%	7.7%	-2.0%	4.0%	1.7%
March	6.1%	6.0%	0.1%	4.7%	1.4%
April	7.3%	2.0%	5.3%	4.3%	3.0%
May	5.6%	-4.1%	9.7%	0.3%	5.3%
June	4.3%	-5.3%	9.6%	-0.2%	4.5%
July	2.5%	-5.9%	8.4%	0.0%	2.5%
August	7.3%	-0.3%	7.6%	5.0%	2.3%
September	8.4%	3.8%	4.6%	7.2%	1.2%
October	11.0%	7.0%	4.0%	6.9%	4.1%
November	11.6%	9.7%	1.9%	6.4%	5.2%
December	10.0%	8.6%	1.4%	5.0%	5.0%

Figure 41

Month-End Formation Date	EM Winners	EM Losers	EM Winners - Losers	SPX	EM Winners - SPX
January	12.8%	10.5%	2.3%	7.9%	4.9%
February	9.2%	4.8%	4.4%	4.6%	4.6%
March	8.7%	3.4%	5.3%	4.6%	4.1%
April	10.2%	-2.0%	12.2%	4.1%	6.1%
May	14.8%	-4.4%	19.1%	4.7%	10.1%
June	14.4%	-1.2%	15.6%	6.4%	8.0%
July	15.0%	3.0%	11.9%	7.4%	7.6%
August	16.2%	11.2%	5.0%	11.9%	4.3%
September	15.3%	13.2%	2.1%	11.6%	3.7%
October	13.3%	18.8%	-5.6%	11.8%	1.5%
November	15.4%	15.8%	-0.4%	10.4%	5.0%
December	14.3%	14.0%	0.3%	9.4%	4.9%

Figure 42

Source: Compustat, CRSP, and the Center for Research in Security Prices (CRSP) at the University of Chicago. Data are from 1963 to 1999. The sample is divided into two periods: 1963-1982 and 1983-1999. The first period is used to estimate the parameters of the model, and the second period is used to test the model. The results are reported in Table 1.

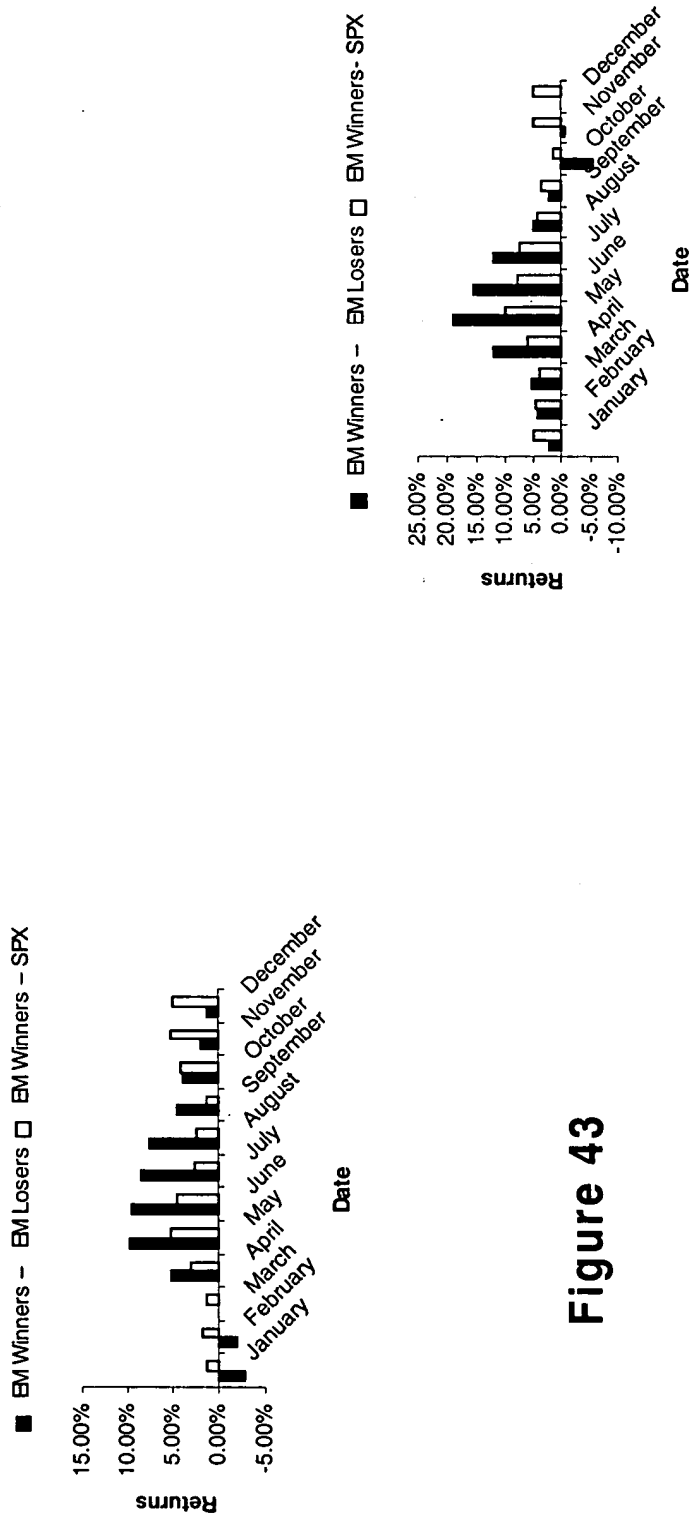


Figure 43

Figure 44





■ Excess Return 1998 □ Tracking Err 1998  
 ▨ Excess Return 1999 □ Tracking Err 1999

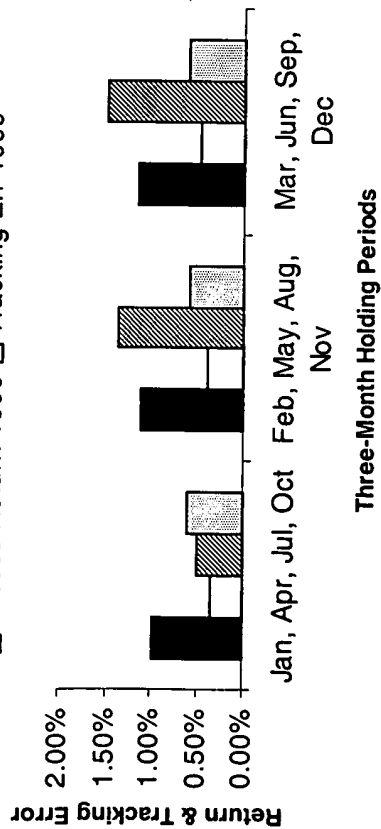


Figure 49

■ Excess Return 1998 □ Tracking 1998  
 ▨ Excess Return 1999 □ Tracking 1999

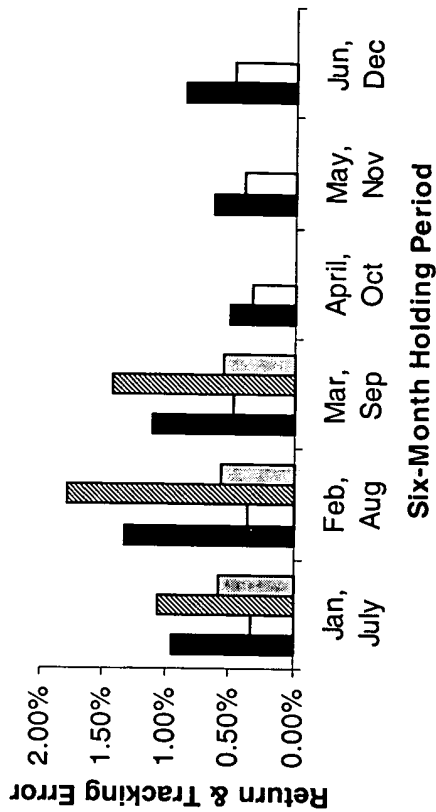


Figure 50